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# and **Soil Water Conservation**

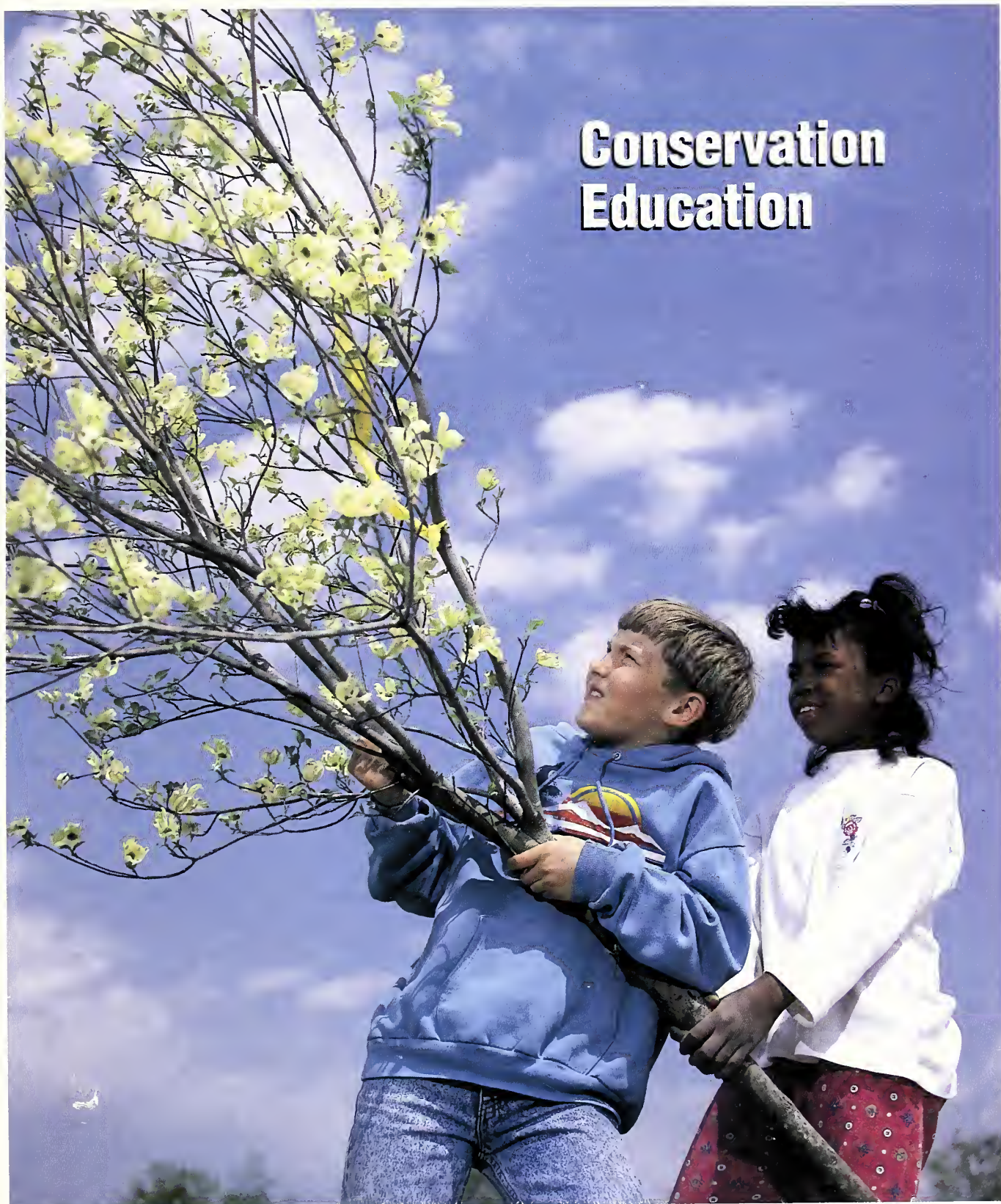
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## **Conservation Education**





**Cover:** Fourth-grade students Jonah Saunders, left, and Kim Kelly of Kent Island Elementary School in Queen Anne's County, Md., plant a dogwood tree as part of their outdoor classroom conservation and environmental education activities. (Keith Weller photo; W92-01)

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**Edward Madigan**  
Secretary of Agriculture

**John Beuter**  
Acting Assistant Secretary  
Natural Resources and Environment

**William J. Richards**  
Chief, Soil Conservation Service

**Judith K. Johnson**  
Director, SCS Office of Public Affairs

**Leslie Jane Wilder**  
Editor

**Paul DuMont**  
**Mary Jo Armstrong**  
Associate Editors

**Kim Berry-Brown**  
Contributing Editor

**Tim McCabe**  
Photo Editor

**Chris Lozos**  
Design Consultant

**Magazine inquiries**  
Send inquiries to: The Editor, *Soil and Water Conservation News*, Office of Public Affairs, Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 2890, Washington, DC 20013-2890.

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# Comments from the SCS Chief:

## Teaching Tomorrow's Conservationists

A new Soil Conservation Service activity will take full advantage of the enthusiasm of the American people for conserving, protecting, and learning about our natural resources. Beginning this year, SCS will channel some of that enthusiasm into a program that will help teachers, students, and citizens gain a knowledge of—and respect for—the world around us.

Outdoor classrooms have been around for several decades. SCS field staff have worked with thousands of local schools in setting them up. Now, the Earth Team has joined the effort, working with SCS toward a goal that to some may seem unattainable: an outdoor classroom on every school site in the country.

But because of the tremendous interest and cooperation the project has generated both inside and outside SCS, I don't think it's an impossible dream. I know conservation district members share that interest and I encourage them to bring their resources and many diverse strengths to these vital projects at the local level.

SCS's Earth Team volunteers have contributed more than 1.6 million hours that are worth more than \$17 million to the cause of the environment. The Earth Team represents a dedicated, seasoned corps of citizens who want to help conserve the Nation's soil and water resources. Putting their talents to work in outdoor classrooms looks like a perfect match.

Outdoor classrooms offer students opportunities to learn about ecosystems, wildlife and insects, pond ecology, tree planting, soil, and all other natural resources. They also offer teachers new resources to help teach all academic topics. Many people are involved in setting up and operating an outdoor classroom, including teachers, parents, local businesses, conservation districts, and Federal, State, and local government agencies.

Outdoor classrooms offer a "field trip" without leaving the school grounds. This has many advantages over visiting a site away from the school: It is not dependent on transportation, chaperones, cooperative weather, or the other demands associated with field trips. It also helps students to integrate conservation education into their lives, to not think of the environment as someplace "distant" from them or as a place to be "visited."

Working with teachers and students is an important aspect of SCS's effort, because it passes along an understanding about and a respect for the environment to a new generation of Americans.



Chief

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## Important Notice to Our Readers

SCS is putting together a team comprised of our customers and our own program and public affairs professionals to determine what form we should use to best reach our audiences. With this issue, publication of the *Soil & Water Conservation News* is suspended until the team's review is completed and new communications products are developed.



# SCS Starts New Outdoor Classroom Effort

**T**HE SOIL Conservation Service has a goal: an outdoor classroom for every school in the United States. Toward that end, the agency is developing a "how-to" packet to assist in establishing outdoor classrooms.

Outdoor classrooms offer an area for students and teachers to

conduct natural resource investigations and provide an inexpensive, immediate "field trip" location. They can showcase conservation practices. And they can enhance the SCS objective of marketing resource conservation to new and expanding audiences.

The "how-to" packet will be based on an updated, revised version of the SCS publication "Outdoor Classrooms on School Sites." Initial SCS encouragement of the outdoor classroom concept began about 1967. Other training materials will include a guide and videos showing examples of outstanding outdoor classrooms.

In July, SCS presented an exhibit on its National Outdoor Classroom Initiative at the National Education Association's (NEA) annual meet-

ing in Washington, D.C. The display showed how computer-based image processing speeds the planning and building of outdoor classrooms on school sites. SCS Soils Survey personnel staffed the booth to explain how the study of soils can be used to teach subjects such as mathematics and reading.

Potential cooperators with the SCS initiative include soil conservation districts and educational organizations, as well as civic and environmental groups. Many government agencies at the local, State, and Federal levels may also be involved in the outdoor classroom effort.

**Mary Jo Armstrong**, associate editor, *Soil & Water Conservation News*, SCS, Washington, D.C.



At Kent Island Elementary School, SCD employee Mary Ann Skilling, left, instructs fourth graders Laura Olajide, Ryan Shiley, and Danielle Young, left to right, in the construction of a bluebird nesting box. (Keith Weller photo; W92-02)



District planners liked the idea of establishing outdoor classrooms.

## Maryland Goes for 'Outdoors'

**W**HAT DO soil conservation district personnel do when the State mandates severe budget cuts for school science programs, but they feel many of the district's students are losing touch with the most basic fundamentals of how the world works?

Maryland's Mary Ann Skilling, a soil conservation planner for the Queen Anne's County soil conservation district, has the answer. "In Queen Anne's County, we went into overdrive and established outdoor classrooms in five of the district's elementary schools and in two of the middle schools," she said.

Three years ago, the district began its concerted effort to add more conservation education activities to the annual plan of operation. District planners liked the idea of establishing outdoor classrooms. Soil Conservation Service workers quickly became involved, because conservation district offices in Maryland are staffed by district, State, and SCS personnel.

"There was a need to get children involved in exploring their natural surroundings and help them develop an appreciation of the world around them," said Skilling.



Students at Kent Island Elementary School in Queen Anne's County, Md., learn how to plant a tree, including mulching, watering, and staking, in an outdoor classroom activity. (Keith Weller photo; W92-03)



Fifth grader Jennifer Barlow of Centreville Middle School in Queen Anne's County, Md., says that "hands on" is the only way to learn about wildlife habitat. (Tim McCabe photo; W92-04)

Skilling worked with science teachers at all the district's schools to develop outdoor classroom plans that incorporated wildlife habitat areas, forested areas, flower and vegetable gardens, and

site assessment of erosion-control measures.

At two schools, Centreville Middle School and Kent Island Elementary School, teachers in-



## Center Presents Prairie Ecology

The Plains Conservation Center (PCC), located in Aurora, Colo., is an outdoor classroom of sorts—but not like one might imagine. It's not a mountainous environment with a roaring river and lush meadow. This outdoor center exemplifies the other side of Colorado—the rapidly vanishing mixed-grass prairie that once covered almost 40 percent of the State.

Situated on 1,900 acres of land, the PCC is bordered by suburban Denver. It is owned and run by the West Arapahoe Soil Conservation District (SCD), which received the 1991 National Association of Conservation District's Southwest Regional Conservation District of the Year award.

The Soil Conservation Service works with the West Arapahoe SCD to develop workshops and day camps at the center, to introduce conservation improvements to the land, and to erect structures.

"Though many of our programs are geared toward children, I think we also reach many adults. Here they begin to realize the impact humanity has on this fragile prairie ecosystem," said Fran Blanchard, PCC codirector.

The center's educational programs explain the dynamics of the High Plains grasslands and, more broadly, help visitors develop a personal conservation ethic.

"The center offers seminars on a variety of subjects from use of xeriscapes (water-conserving land-

scapes) to wildlife photography," noted Tudi Arneil, West Arapahoe SCD Board President.

A wagon ride offers visitors a look at a variety of western wildlife, including the American pronghorn, coyote, badger, and bull snake. A tour of a replica sod school house presents a trip back in time.

Many members of the Friends of the Plains Conservation Center serve as volunteer workers. "Many high school students are committed to doing a certain amount of community service," said Arneil. "And we have plenty for them to do."

**Lorraine Peavy**, public affairs specialist, SCS, Lakewood, Colo.

volved the children in the planning. They were asked to think about what they wanted in the outdoor classroom and where items should be installed. Teachers were excited that the research gave students a chance to practice their reading, writing, and problem-solving skills.

At one school, children noticed a severe erosion problem in the area where they wanted to plan a nature trail. With help from Skilling and Donald Dawkins, SCS soil conservation technician, Annapolis, Md., an area design was developed that included a wetland.

Funding for the outdoor classrooms came from several sources. The Maryland Association of Soil Conservation Districts gave seed money for the program at each of the schools. The Chesapeake Bay Trust and the Queen Anne's County Forestry Board provided



Fifth graders Blaine Skilling, left, and Shanta Johnson of Centreville Middle School in Queen Anne's County, Md., plant and mulch a holly tree. (Tim McCabe photo; W92-05)

funds. District staffs and staff from the Maryland Forest Service and Wildlife Division cooperated in designing and constructing the outdoor classrooms.

"An outdoor classroom is more than a place, it is a concept that adds new dimensions to the life of any school," summed up Carol

Leyon, a fifth-grade teacher at the Centreville school. "The only bounds on the uses of an outdoor classroom are the limits of one's imagination."

**Kathleen Diehl**, public affairs specialist, SCS, Annapolis, Md.



Eight “showcase” lesson activities for grades K-12 underwent pilot testing in the spring of 1992 in five States—California, Colorado, Montana, New Hampshire, and Texas.

## FLP Makes Strides in Agricultural Curriculums

**I**N A CLASSROOM, sixth graders learn how a farmer would irrigate a field of sorghum that stretches to the horizon—or at least to the east wall of the classroom.

Using the agricultural education pilot testing for Project Food, Land, and People (FLP) and using simulated equipment, they place an irrigation head in a “T” shape. They attach irrigation leads to the T. They place rubber tubes that would potentially move irrigation water into planted rows of sorghum hundreds of feet long.

“The field has a loamy soil, according to this Soil Conservation Service soil survey,” said the teacher. “It will hold the water near the surface so the the sorghum roots can ‘grab’ the water drops.”

The teacher questions how these farmer-students would handle overwatering nearest the irrigation leads and any field-slope irregularities. The 30 students talk about these and other questions to the end of the class period.

The teacher summarizes and gives followup assignments on another kind of irrigation, circular spray-watering. Then she begins describing the basics of the second of eight “showcase” lesson activities provided her by Project Food, Land, and People.

FLP had its origins in 1988. Educators, soil conservationists, and



Fourth graders in a Bakersfield, Calif., school are working on an FLP “showcase” lesson activity, Don’t Use It All Up. The jar is Earth’s natural resources; sponges represent human demands on these resources. (Pam Mossman photo; W92-06)



Ninth graders in a LaPuente, Calif., high school near Los Angeles, are "playing" the Game of Farming, part of the high school geography project that has a significant environmental component. (Steve Slakey photo; W92-07)

agricultural leaders attended a national goals workshop. They talked about gardens, agriculture, and raising food, and about how many school children today are naive about the interdependence of food, land, and people.

They identified and talked about gaps in environmental and agricultural education:

- Missing links and relationships between the environment and agriculture,
- Agriculture's role in modern society, and

### **Future Topics for Pilot Testing by FLP**

Biotechnology  
Careers  
Culture and human history  
Decision making  
Economics  
Environmental quality  
Food and fiber production  
Government policy

Natural resources  
Outdoor classrooms  
Population growth and distribution  
Products and the consumer  
Resource management  
Technology and research



## Chris Williams'\* memories.... Of food and fiber and a fine old feast

Gardens bring back favorite memories of childhood.

Picking succulent sweet corn, cutting a rib of rhubarb to chew on, shucking peas with Grandma, or crawling through the asparagus patch—all were fond pastimes of my youth before the hoe fit my hand.

Nothing tasted better than those home-grown, home-cooked meals.

Today, it must be 8 miles to the closest garden as big as Gramp's. In

between, there are seven grocery stores within a mile of home. Then, add in the 24-hour convenience shops and 10 clothing stores, all within the same mile.

As a result, it shouldn't surprise anyone that the majority of people don't remember it requires soil, water, and labor to produce food and fiber.

\*Williams is chairman of the FLP committee.

- Cultural and societal impacts and demands on the local environment and agriculture.

The workshop participants decided to pool their resources and funding efforts and to address these shortcomings through a supplemental curriculum project in environmental education for kindergarten through 12th graders (K-12), called Food, Land, and People.

They decided to create educational materials to fit a scope and sequence of major topics of agriculture. They planned to coordinate preparation of 150 draft lesson activities designed to teach one or more concepts.

FLP is designed to enhance and enrich existing K-12 efforts in agricultural, environmental education, and natural resource conservation programs. It will complement the U.S. Department of Agriculture's Ag in the Classroom program and such youth development programs as 4-H and FFA. FLP will promote and strongly reinforce SCS's National Outdoor Classroom Initiative.

The secretary of FLP, Ruth Chenhall, recounts: "The educational work really got going when we hired Roxanne Brickell as an educational consultant. We also hired four curriculum consultants on part-time bases. They are refining draft lesson activities and writing new activities to teach concepts not yet covered."

Lesson activities were grouped into four grade levels, K-3, 4-6, 7-9, and 10-12. Activities will use one or more learning styles and critical thinking skills to convey a basic understanding.

"Roxanne and her colleagues are scheduled to begin pilot testing the K-3 lesson activities in the fall of 1992," said Chenhall. "Preparation and testing of other grade-level lesson activities will follow as funds allow."

Eight "showcase" lesson activities for grades K-12 underwent pilot testing in the spring of 1992 in five States—California, Colorado, Montana, New Hampshire, and Texas. With their teacher's guidance, students:

- Designed simple, in-class irrigation systems,

- Traced steps of processing products from the field to the consumer,

- Demonstrated visually whether natural resources can support human needs,

- Researched demographic patterns and drew conclusions,

- Dramatized plant pollution by "becoming" honey bees and apple trees,

- Analyzed issues involved in urbanization of agricultural land,

- Examined the chemical makeup of pesticides and various ways of managing pests, and

- Explored renewable and nonrenewable natural resources and their hypothetical uses.

"I try to teach young people not to jump to conclusions, not to close their minds," said Andrew Miller, a Bolton, Tex., high school teacher who taught these FLP pilot lesson activities.

"Your lesson activity [Cows or Condos] enabled me to take students from one side of the issue [to the other] which helps them [understand] the multifaceted nature of the issue."

FLP has an ambitious list of future lesson activities to pilot test, and teachers like Andrew Miller are likely to be among those wanting to teach them to their students.

For additional information, contact: Roxanne Brickell, FLP Education Consultant, 60577 Maple Grove Road, Montrose, CO 81401, or telephone 303/249-8767.

**Christopher P. Williams**, public affairs specialist, SCS, Phoenix, Ariz., and **Roxanne Brickell**, educational consultant, FLP, Montrose, Colo.

# Field Day Brings 'Em Home

**T**HE SITE of the Fifth Annual Conservation Education Field Day in San Miguel County, N. Mex., is only a 15-mile drive from the interstate. But the local agricultural communities with many Hispanic residents have seen enormous changes as the post-World War II prosperity passed them by.

Villages that once boasted populations of 1,000 or more are now nearly abandoned. And, in nearby cities and towns, society has sought a different way of life.

"These children are no longer exposed to learning about natural resources on a daily basis," said Roy Hernandez, a fifth-grade teacher in the county. "Nearly all of them live in town now. Even the few who live on ranches don't get the wide variety of information as is afforded them at this field day."

More than 450 fifth graders and at least 19 teachers from the Las Vegas City, West Las Vegas, and Pecos School districts participated in the event. The field "day" is actually 2 days at two different sites to facilitate participation from schools across the county's 3 million acres.

Eight learning stations staffed by State and Federal agency personnel feature demonstrations and hands-on sessions on natural resources. Station topics include: wildlife management, predator

control, soil and water conservation, forestry, and fire fighting. Two favorites are the sheep-shearing demonstration and the State Park and Recreation Division's patrol boat that has a warning blast that students can sound.

Each year, teachers speak very positively about the workshops and the Tierra y Montes Soil and Water Conservation District (SWCD), which sponsors the event.

Six years ago, Soil Conservation Service District Conservationist Elmer Veeder proposed the outdoor classroom concept to the district board. The district adapted the concept and came up with the field day.

"They wanted to develop a tangible program that would show results and bring our young people closer to the land from which they came," said Macario Herrera, SWCD district coordinator.

The field day itself has grown over the years and has resulted in several spinoffs—Arbor Day events, Soil and Water Stewardship Week activities, essay and coloring contests, and sponsorship of students at the New Mexico Forestry Camp.

As the day draws to a close and school buses take the ride back to town, the children look out over the land of their ancestors with a new appreciation for the land, their heritage, and themselves.

**Betty Joubert**, public affairs specialist, SCS, Albuquerque, N. Mex.



This fifth grader is one of 450 who got a first-hand look at SCS surveying equipment with the help of Elizabeth Wright, left, SCS range conservationist, at the Fifth Annual Conservation Education Field Day in San Miguel County, N. Mex. (Betty Joubert photo; W92-08)



# Focus on Diversity

## SCS Chief Meets With Navajo

"As to your program: There's a lot of conservation on the ground. And I really congratulate your districts," noted Soil Conservation Service Chief William Richards during his June address to the Navajo Nation Soil and Water Conservation Districts.

"I know you're into everything from water management and streambank protection—to your work on rangeland—the fencing, pipelines, and grazing systems. One of the really exciting things to me is the work you're doing on crop-residue management."

Speaking in Farmington, N. Mex., Richards said, "To help you get to know SCS better, we're putting together an Indian users' guide to

SCS programs. We're doing this in cooperation with the Intertribal Ag Council....In terms of sharing our people and resources, we'll certainly do all we can. In fact, we're making assistance to Native Americans a priority in our budget process."

## Pima Tribe Reduces Tillage

The Pima Tribe of the Gila River Indian Community (GRIC) in south-central Arizona historically has not had a good opportunity to learn about new conservation technology. This has been caused mainly by a lack of local programs to demonstrate the benefits of new conservation technologies to tribal farmers.

To remedy the situation, the Soil Conservation Service entered into a cooperative agreement with the Gila River Natural Resource Conservation District (NRCD) to develop a demonstration project. The project provides direct assistance to the community to improve conservation management.

To introduce the concept of crop-residue management, the staff of the SCS Chandler field office, along with the GRIC, held a community crop-residue management and reduced-tillage workshop on the tribal farm. While planting 240 acres of guar, an oilseed crop, workers demonstrated the use of a planter and other equipment needed for applying conservation practices. The workshop gave the community a base of knowledge upon which to build further conservation awareness.

Ardell Ruiz, cotton farmer and chairman of the Gila River Farm Board, quickly accepted the opportunity to participate in the project. Ruiz and SCS staffers prepared a conservation plan for his farm.

The plan includes methods to improve soil condition, water quality, and crop production while reducing tillage operations. The Gila River NRCD, in cooperation with SCS, provided Ruiz with the use of a ridge till/no-till planter to implement his conservation plan.

"Projects such as this provide a good setting for SCS to reach its



A Gila River farmer, in south-central Arizona, tests equipment that will allow him to plant with reduced-tillage techniques. (Phil Jacque photo; W92-09)

November is Native American History Month. This section was compiled and edited by **Mary Jo Armstrong**, associate editor, *Soil & Water Conservation News*.



clientele, especially the limited-resource farmers," noted Dino DeSimone, district conservationist, SCS, Chandler.

A future project objective is to establish a permanent demonstration area within the community that will highlight conservation practices such as reduced tillage, improved cropping systems, and irrigation water management.

Other project goals are to help farmers reduce by five or more the number of annual tillage operations and reduce water usage per acre at least 12 acre-inches, and to encourage farmers to grow a cover crop in addition to cotton.

"The ultimate goal is to assist the Gila River community to adopt farming practices that will keep the land productive for present and future generations," concluded DeSimone.

**Lesia Young**, public affairs specialist, SCS, Phoenix, Ariz.

## Walker River Tribe Improves Rangeland

The Walker River Tribe developed a comprehensive plan for managing over 300,000 acres of rangeland on their western Nevada reservation, with Soil Conservation Service assistance.

"During my inventory, I determined that over half the range was in good to excellent condition," noted Floyd Rathbun, SCS range conservationist, Reno. "But it re-



Members of the Walker River Tribe, in western Nevada, pitch in to build new rangeland fencing. (Floyd Rathbun photo; W92-10)

mained ungrazed because cattle concentrate near watering areas."

In response to Rathbun's analysis, the tribe has fenced 6 miles of land and added a cattleguard to begin to break the range into smaller units for better livestock management.

"We depend on our rangeland for winter grazing," said Pat Kelly, tribal ranch manager. "So, we're going to fence it into 20 different units and rotation-graze the cattle. And we'll have irrigated pasture for summer grazing and for breeding pens. We can control breeding, check for pregnancy, and do vaccinations before turning them out on the range."

Improved rangeland management will benefit all natural resources and promote tribal interests. Reducing rangeland ero-



This group of Many Farms High School Earth Team volunteers, Arizona. (Diane Gilles photo; W92-11)



sion will help protect water quality for recreation and fisheries in the Walker River. Wildlife will benefit, including the Lahontan cutthroat trout and the bald eagle, both "threatened" species.

The tribe is seeking cost-share and other financial aid to pay for the cost of other planned range-land improvements, such as a large number of new cattle-watering facilities.

"Agriculture is our primary industry," said Anita Collins, tribal chairperson. "But all our resources can complement each other and be put to good use if we plan what we're going to do wisely."

**Elizabeth Warner**, public affairs specialist, SCS, Reno, Nev.

## Windbreaks Work For Navajo Nation

Earth Team volunteers from Many Farms High School provided the labor to plant trees as windbreaks



SCS Earth Team volunteer plants tree seedling that will help provide protection from wind erosion. (Diane Gilles photo; W92-12)

near Chinle, Ariz. The planting was part of an April windbreak workshop put on by the Navajo Nation Division of Natural Resources and the Chinle Soil and Water Conservation District, with Soil Conservation Service assistance, to expand the use of windbreaks on Navajo tribal lands.

Windbreaks slow down wind to keep soil from blowing away and provide community protection in

the normally windy and dry environment.

Navajo land users at the workshop got information on windbreak design, plant materials, and low-cost irrigation systems. Community involvement in the project was spotlighted as an important element for success.

**Steve Carmichael**, Native American program manager, SCS, Phoenix, Ariz.

## Treatment Benefits Cherokee

Sediment that eroded unstabilized logging roads on tribal lands in western North Carolina threatened a trout fishing operation that was an economic mainstay for the Cherokee Tribe, as well as a major tourist attraction.

Critical area treatment measures underway, sponsored by the Soil Conservation Service's Southwestern Resource Conservation and Development (RC&D) Area, helped change the resource outlook.

"The RC&D project with SCS assistance has proven very helpful to our Cherokee reservation trust lands," said Cherokee Principal Chief Jonathan L. Taylor. "We support this program 100 percent."

Erosion and sediment problems were the result of logging and other past uses of the land. Soil loss from the roads and skid trails was averaging 174 tons per acre,



s planted trees for windbreaks on Navajo tribal land in

which is 35 times greater than the soil loss tolerance for most of the area's soils.

Water quality in the headwaters of Soco Creek, a major tributary to the Oconoluftee River, was threatened. Sediment from the area had moved rapidly downstream and almost eliminated native trout reproduction in some streams.

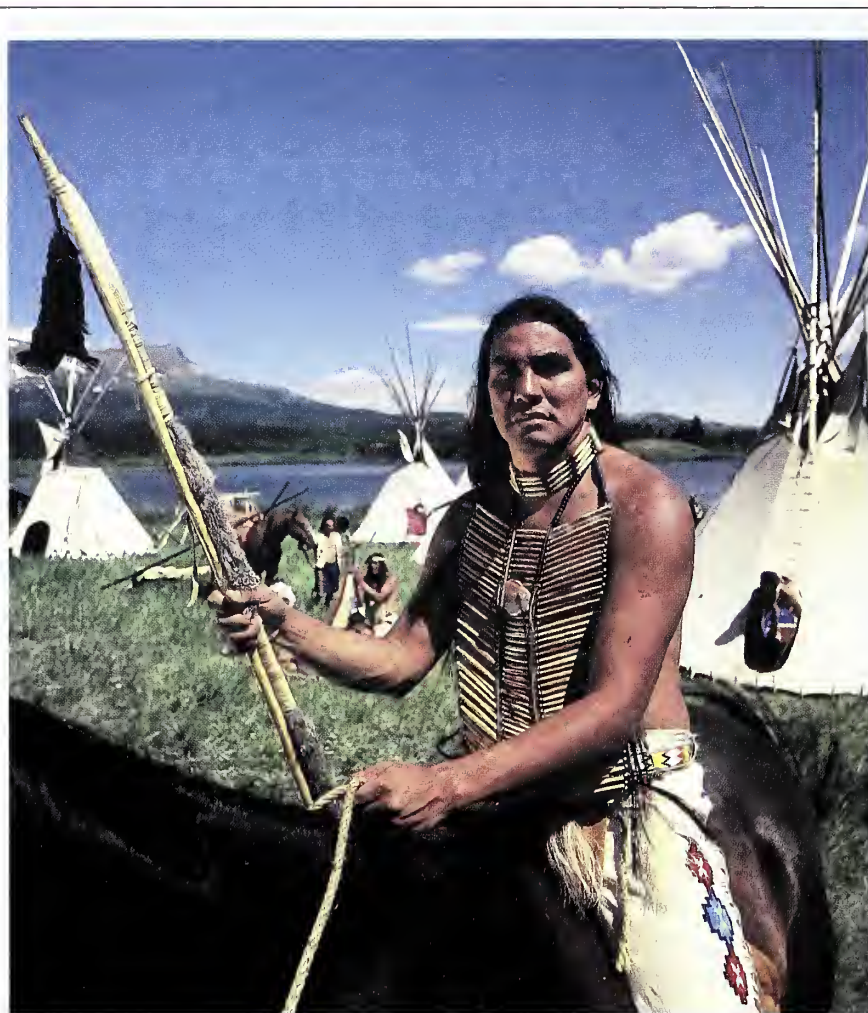
Critical area treatment began in late 1987, with the regrading, stabilizing, and seeding of critically eroded logging roads. Pipes and rock riprap were installed where needed. A mixture of 'Ky-31' tall fescue, creeping red fescue, 'Va-70' shrub lespedeza, sericea lespedeza, and 'Lathco' flatpea was sown.

Two work contracts were awarded to Cherokee-owned companies that employ all-Cherokee work crews. Serving as construction inspector was Arthur Wade, SCS soil conservation technician, Bryson City, N.C., who is also Cherokee.

With three of the five planned phases of work completed, about 24 acres of roads, logging skid trails, and logging decks have been stabilized and seeded.

The tribal fishing enterprise is no longer threatened by uncontrolled erosion. As a welcome result of the critical area treatment, native trout are making a comeback in the headwaters of Soco Creek.

**Kenneth Futreal**, Southwestern RC&D coordinator, SCS, Waynesville, N.C., and **Albert Coffey**, forester, SCS, Raleigh, N.C.



Rodney Grant had the starring role in an SCS public service announcement video filmed on the Blackfeet Reservation near Glacier National Park in Montana. Grant played the character Wind In His Hair in the feature film "Dances With Wolves." In the video, part of the "We Owe It To Our Children" national campaign, Grant talks about nature's harmony in Piegan, the Blackfeet language. Viewers see English subtitles and are prompted to call 1-800-THE-SOIL to find out more about conserving soil and water resources. (Tim McCabe photo; W92-13)



"Midway through all the projects...everyone sat down under some shade, out of the hot sun. And we talked about what makes a successful conservation project."

## Earth Matters to Girl Scouts In Arizona

**S**ENIOR GIRL Scouts and leaders of the Girl Scouts of the U.S.A. have planted grasses and trees to stem soil erosion in an abandoned road and on a streambank as part of summer workshop projects in Arizona.

"At our workshop sessions in July 1990 and 1991, we had 15 Girl Scout leaders and 15 senior Girl Scouts participating—from all across the United States," said Donna Nye, senior Girl Scout program specialist.

"They all worked together to learn skills to improve and protect the environment," Nye explained. "Some of the hands-on activities involved conservation projects.

"Soil Conservation Service people at the Prescott, Ariz., field office helped us set up grass-seeding and willow-planting projects. And the SCS Plant Materials Center in Tucson, Ariz., helped us a lot."

The 1-week camp and workshop sessions, titled "Earth Matters—Meeting the Challenge," were taught at the Willow Springs Program Center near Prescott, Ariz. Nye and her staff organized various environmental education projects.

"The 1990 conservation project that involved SCS was seeding an unused dirt road at the program



Bob Adams, SCS range conservationist, examines growth progress of grasses and legumes planted by Girl Scouts of the U.S.A. members during a conservation training course at Willow Springs Program Center in Arizona. (David Smith photo; W92-14)

center," said Nye. "It was the whole process—from breaking ground to watering the growing grass."

Participating leaders and Girl Scouts prepared the seed bed and put wooden beams across the road to decrease the energy of the runoff water. After seeding with side-oats and blue gramas, intermediate wheatgrass, and yellow sweet clover, they spread manure and straw mulch. The plantings will help decrease soil erosion and will beautify the area.

In 1991, SCS assisted the Girl Scouts with seeding a wildlife enclosure and with planting willows to decrease soil erosion along a streambank. Alfalfa, orchardgrass, and other species were planted in the enclosure. Plantings were watered with reclaimed water from other camp activities. Willows will stabilize the streambank.

"Midway through all the projects," Nye related enthusiastically, "everyone sat down under some shade trees, out of the hot

sun. And we talked about what makes a successful conservation project.

"Some people said, 'The projects were carefully planned;' some others said, 'There was plenty of work without people getting in each other's way.'

"Others spoke up about how tools, work gloves, and seed were there for everyone. And local horses provided plenty of manure to be spread—free of charge.

"The leader and senior Girl Scout participants had plenty of fun," Nye added. "They returned to their homes full of pride from a job well done. And they've got the enthusiasm and skills now to tackle similar projects in their communities."

The next "Earth Matters" camp and workshop is scheduled for summer 1993.

**Robert L. Adams**, range conservationist, SCS, Prescott, Ariz.

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Typical comments were: "Right on target"... "Now, I feel I can teach conservation activities more effectively and to larger and more diverse groups of volunteers."

## TRAIL Boss Teaches Leadership, Conservation

**M**ORE THAN 20 years ago, Boy Scout leaders near Los Angeles met with USDA Forest Service (FS) officials to determine what Scouts could do to help the environment in the Angeles National Forest in California.

Since then, there have been varied and useful Boy Scout, FS, and adult conservation activities. The results inspired a new adult leadership program, TRAIL Boss.

Early Scout "trail bosses" emphasized building trails, so the name trail was appropriate. But today, TRAIL is a path for more than walking. It is an active, volunteer, educational, and hands-on conservation effort. Its acronym is Teaching Resources and Individual Leadership.

Through a cooperative agreement, the Soil Conservation Service assists Boy Scouts with TRAIL Boss.

TRAIL Boss teaches volunteer leaders the specialized skills for training and leading volunteer crews involved in conservation projects. The result is environmental education, greater understanding and care of cultural and natural resources, and actual conservation projects accomplished. The program is open to adults from any youth, conservation, or volunteer organization.

TRAIL Boss trainees have a training manual and take in-the-field training courses. Participants may spend a week of training in either of two courses: skills and administration.

Trainees learn to expand their environmental awareness through observation and open discussions. They improve their environmental education skills through hands-on learning experiences. And they increase their program planning and management capabilities by following projects through to completion.

Training courses were offered for the first time this past July at the Boy Scouts' Philmont Training Facility near Cimarron, N. Mex. More than 50 people—from more than a dozen government agencies

and from several youth and other private organizations—participated in the administrative and skills courses taught by representatives of SCS, FS, the Bureau of Land Management, and the Student Conservation Corps.

In October, a second skills course was held at the Boy Scouts' canoe base near Ely, Minn. Over 20 people attended.

TRAIL Boss is a model adult conservation program. The combination of program administration, volunteer recruitment, program promotion, and hands-on skills development improves the capabilities of volunteer leaders to organize exciting, educational, and rewarding conservation programs.

What did participants say about these first training efforts? Typical comments were: "Right on target to the needs of volunteer leaders and resource conservation specialists"... "I increased my environmental awareness"... "Now, I feel I can teach conservation activities more effectively and to larger and more diverse groups of volunteers."

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**Thomas W. Levermann**, head, educational relations, SCS, Washington, D.C.

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# Project WET To Be Taught Nationwide

**“W**HAT IS OUR town’s future?” people ask as downpours flood their homes along the river. Yet this “too much water” contrasts with State governors arguing about water scarcity: “Will everyone get all the water they requested?”

Participants in a new water education program—Project Water Education for Teachers (WET)—are learning about such imbalances of water supplies and how to

balance water usage. The program is interdisciplinary, supplementary, and available to educators nationwide.

Project WET will promote awareness and appreciation of water resources. With new knowledge, teachers can prepare young people to deal effectively with complex water issues, such as flooding, drought, water allocation, and water quality.

Soil and water conservation districts cosponsor Project WET at the State level. Soil Conservation Service specialists speak on a variety of water-related topics. The U.S. Department of the Interior’s Bureau of Reclamation (BR) will fund Project WET nationally.

Project WET gained recognition as a “model” youth water education program in North Dakota during the mid-1980’s. In 1989, the

Western Watercourse—a water resources education program at Montana State University—set out to duplicate the success of North Dakota’s program and to expand on it. Since then, BR has helped implement Project WET programs in Montana, Idaho, and Arizona.

To develop a Project WET program, it takes approximately 1 year each of writing the material, of testing and review, and of intensive application.

The Western Watercourse and the Western Regional Environmental Education Council (WREEC) will conduct at least five regional writing conferences to create original materials, including a Project WET Science and Math Activity Guide for science teachers. Support materials will be created to supplement and enhance these guides.

Especially important in Project WET is helping teachers help students understand how important water is to all users—for example, to municipalities, farmers and ranchers, recreationists, fish and wildlife, power utilities, and various industries—and how essential it is for future social and economic prosperity.

For additional information, write: Western Watercourse, Attn: Project WET, 335 Culbertson Hall, Montana State University, Bozeman, MT 59717.

**Elee Erice**, public affairs specialist, Bureau of Reclamation, USDI, Washington, D.C.



A Bureau of Reclamation biologist points out marine life to students in Billings, Mont. (Jerry Leggate, Bureau of Reclamation, photo; W92-15)

"The students tackled a problem involving wetlands this year."

## Envirothon Tests Skills Of Students

**H**IGH SCHOOL STUDENTS FROM 17 States and Canada had their natural resource knowledge and problem-solving skills tested at the National Envirothon in August. Held at St. Mary's College in St. Mary's County, Md., the event was planned and hosted by the Maryland Envirothon Program Committee.

Soil and water conservation district coordinators, Soil Conservation Service professionals, Earth Team volunteers, and representatives of other local, State, and Federal agencies worked to hold most of the competition outdoors. For many States, the National Envirothon is the culmination of a year-long program that raises the environmental knowledge and understanding of resource issues among high school students.

"The students tackled a problem involving wetlands this year," said Bruce Young, conservation district manager for St. Mary's County. "They took on the roles of State [land use or environmental] permit reviewers and, in less than 2 days,

had to provide a recommendation about the development of a county-owned property. The area would have 30 acres of wetlands and a stream containing endangered species. They made 20-minute presentations on their recommendation, completed two visual aids, and presented a field notebook to a panel of judges."

As a separate activity, students also reconstructed a wetland, planting 700 feet of shoreline along the St. Mary's River with wetland vegetation.

Other Envirothon activities included a teleconference to students in Australia; a program given by Federal, State, and local agencies on "The Future of Natural



Students entered in the 1991 National Envirothon listen to a presentation from a participant in a town beautification project in Mapleton, Maine; they are standing beside the garden used for the project's plant nursery. (Kathleen Diehl photo; W92-16)



## Districts Offer Year-Long Program

The heart and soul of Maryland's Envirothon program and some of its most intense learning situations begin with activities in participating soil conservation districts in September.

"We have a 'mini-Envirothon' for teachers where they can go to different stations and answer questions asked by resource professionals," said Craig Hartsock, district manager for Allegany County. "That way, they can experience what will happen to students in the district and State contests toward the end of the school year. After the 'mini-Envirothon,' the teachers and county resource professionals plan what training is needed to get students ready to compete in the contests."

"The Maryland Envirothon program strives to be a 'teacher-driven'

program," noted Hartsock. "But because some teachers aren't comfortable with field studies, we try to coordinate that portion of the environmental education curriculum."

The Envirothon program in Maryland works with the Maryland Board of Education to develop natural resource activities that emphasize team-building, communication skills, and conservation partnership building.

In 1992, Kent County's district coordination of the Envirothon paid off when the team won the State-level Envirothon.

"We tried to have field trips in all covered areas—usually one a month," said Karen Miller, Kent County conservation district manager. "These included soils field days, nature hikes to study wildlife, community tree plantings, and stream walks. During the cooler

months, we scheduled an event in the gym where we showed nature videos and offered indoor training."

While preparing for the Envirothon, Maryland students get a taste for natural resource and conservation careers by working closely with natural resource professionals from local soil conservation districts, State agencies, the Soil Conservation Service, and other Federal agencies.

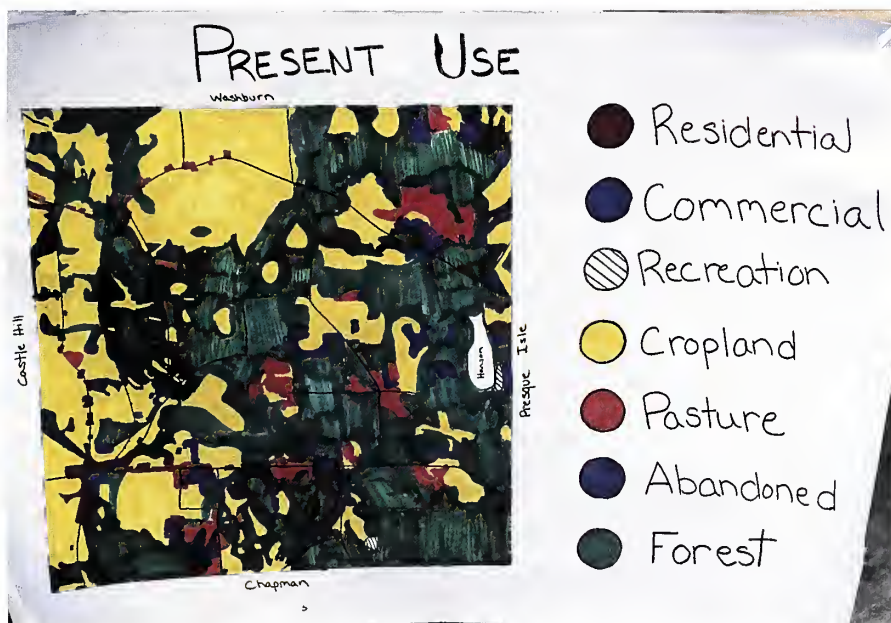
The agencies are hopeful that their involvement will later encourage Envirothon participants to enter the work force with a knowledge of and commitment to natural resource issues.

**Kathleen Diehl**, public affairs specialist, SCS, Annapolis, Md.

Resources"; a Chesapeake Bay skipjack trip to study water quality issues and shoreline stabilization; and a campfire program about wounded wildlife.

"The competition was the culmination of a year's study of wetlands by students in each participating State," noted Young. "It was interesting to see their photographs of wetlands in their States because the types of wetlands common in Kansas are a lot different than they are in Maryland."

**Kathleen Diehl**, public affairs specialist, SCS, Annapolis, Md.



This land-use map is one of the two visual aids prepared by a student for the National Envirothon. (Kathleen Diehl photo: W92-17)

Each day of a typical 5-day workshop is designed to focus on a different conservation agency or topic.

# Teachers Learn About Natural Resources

**“E**XPERTS ON local natural resources can provide new insight and are available in every soil and water conservation district,” said Philip Hadarits, Soil Conservation Service district conservationist for Columbia and Richmond counties in Georgia. “And, the best way to reach most people is to have the experts teach the teachers,” he added.

Five years ago, the Columbia County Soil and Water Conservation District decided to give teachers the tools, information, and resources necessary to teach natural resource conservation. They worked with the Columbia County Board of Education to organize a teachers’ conservation workshop and asked the Soil Conservation Service to organize and run the annual workshop.

Each day of a typical 5-day workshop is designed to focus on a different conservation agency or topic, including SCS, the Georgia Forestry Commission, the Georgia Department of Natural Resources (DNR), urban conservation, and conservation education.

On the first day, teachers can see how SCS meets its goals by trying out a surveyor’s level and rod for installing practices. After the



George Rice, SCS area engineer in Statesboro, Ga., explains the use of the alidade in topographic mapping to participants in the 1991 teacher conservation workshop. (Wendy Lowenthal photo; W92-18)

field trip, they understand how soil surveys and conservation planning are done.

The next day the Georgia Forestry Commission takes the class to a reforestation site and sawmill. At Forestry Commission headquarters, teachers learn about identifying plants, controlling fire, and making paper. This papermaking demonstration is one of many programs shown at local schools that is well liked by students.

On the third day, representatives from the DNR give an overview of its goals and mission. They also explain their availability to present school programs and provide educational materials, films, and videos. The highlight of the day is a visit to a local fish hatchery.

Day four concentrates on urban conservation. The teachers visit a soil-erosion and sediment-control site with a county inspector to see first-hand how county government and SCS work to control soil loss in an urban environment. They also

learn how 100-year flood plains affect planning and zoning.

The emphasis of the last day is on conservation education. The Columbia County Cooperative Extension director discusses programs and educational information available from the Extension office. The Georgia Farm Bureau shows teachers how to introduce students to agriculture through Ag in the Classroom lesson plans and teaching aids.

On this day, the Columbia County district supervisors guide the final group on the last field trip to a 150-acre granite outcropping and then through the district nature study area.

“The teachers’ tired faces reflect the quantity of activities, but their enthusiasm reflects the quality,” said Chairman of the district, State Senator Jake Pollard.

**Jeanne Hagerty**, Earth Team volunteer, Athens, Ga.



## Wetlands Protection Honored

During May's American Wetlands Month, cosponsored by the Soil Conservation Service, national wetlands protection awards were presented by the National Wetlands Newsletter, in cooperation with the U.S. Environmental Protection Agency (EPA).

"The award recipients typify the goals of American Wetlands Month," said LaJuana Wilcher, EPA's assistant administrator for water, at a May 27 Washington, D.C., reception. "They have a deep understanding of what wetlands are, they worked to increase public awareness and appreciation of wetlands, and, most importantly, they took action to protect wetlands in their areas."

North Dakota Governor George Sinner received a special award for public policy leadership on wetlands issues. The late Dr. Ralph Good was posthumously awarded a lifetime achievement award for his work studying and protecting the New Jersey Pinelands.

Farmer Ray McCormick, of Vincennes, Ind., was honored for restoring wetlands on his land. Earlier this year, SCS highlighted McCormick's natural resources work in the video "The Wealth in Wetlands."

The other award winners are Kenneth Bierly, Oregon State wetlands program manager; Henry Barkhausen, director of the Illinois group Citizens Committee to Save the Cache River; David Burke, chief

of Maryland's nontidal wetlands division; Steve Gordon, senior program manager with the Lane Council of Governments in Oregon; and Ross Murphy, director of the Deep Fork Wetlands Coalition in Oklahoma.

## Conservation Education Gets High Marks

A survey was conducted between March and June 1991 to determine what Soil Conservation Service employees and conservation district officials and employees think about conservation education.

The survey responses concluded that conservation education should be a high priority of SCS, that those responsible for it should spend about one-fourth of their time on it, and that it is best done at the field office level.

Approximately 860 SCS employees and 230 conservation district representatives participated in the survey and their responses were quite similar.

Half of the respondents identified the primary audience for conservation education as students and educators. Twenty-five percent of the respondents suggested the general public as the primary audience.

Respondents were divided about whether conservation education efforts should be focused to recruit young people for conservation jobs, but most agreed or strongly agreed that efforts should be made to educate future farmers

about the wise use of soil and water resources.

Of those who agreed with or who were neutral about the recruiting focus, 37 percent felt the best way to recruit was through conservation education programs in schools, while 25 percent felt the best method was with personal contact through schools.

Most respondents agreed or strongly agreed that conservation education efforts should be focused toward environmentalists, civic leaders, and others who can influence decision makers to support conservation programs.

The best way to focus these efforts is to develop new cooperative programs with environmental and civic organizations, according to about half of the respondents. The other half felt these organizations should be encouraged to support ongoing SCS and district efforts, such as the Earth Team volunteers, the National Association of Conservation Districts' Soil Stewardship, or Take Pride in America.

Almost all of the respondents agreed or strongly agreed on the need to focus conservation education efforts on the importance of soil and water conservation. Responses varied on how to create that general awareness, from teacher training to encouraging State boards of education to incorporate conservation education into curriculums at appropriate grade levels.

Respondents included SCS State conservationists, district and area conservationists, national techni-

cal center directors, public affairs specialists, and other program leaders plus district officials and their staffs.

As a result of this survey the SCS conservation education effort has joined with the Earth Team volunteer program. This will provide a new source of assistance at the local level to further implement conservation education.

## Protection Group Recognizes Two for Land Preservation

The first national Land Evaluation Site Assessment (LESA) Conference, held in March, saw two men receive awards for their commitment to farmland conservation.

Ralph Grossi, president of the American Farmland Trust (AFT), and Lloyd Wright, national program leader for land use in the Soil Conservation Service, were honored for their dedicated preservation efforts of farmland.

LESA, a system designed in the early 1970's, is used by local, State, and Federal offices to determine which land should be given the highest level of protection from conversion to nonagricultural uses. One of the principal ways of doing this is to direct potential developers to less productive agricultural lands.

Grossi was recognized for his work as president of ATF, a national, nonprofit organization to stop the loss of productive farmland and promote farming practices that maintain a healthy environment.

Wright's recognition came for his pioneering efforts in developing the LESA system in the 1970's while serving as SCS State resource conservationist in New York.

Sponsored in part by Arizona State University, the University of Pennsylvania, and Oregon State University, the meeting in Kansas City, Mo., served as a forum for a three-phase study being conducted by those universities. The study is designed to determine where the LESA system is currently in use and how effective it has been in its implementation.

The 3-day conference proved to be an exchange of information and new concepts for more than 150 researchers and practitioners on protecting farm, forest, and range land.

## NACD/ICI Award Winners Announced

Conservation education awards were presented to teachers and conservation districts at the National Association of Conservation Districts (NACD) annual convention in Reno, Nev., last February.

These awards encourage teachers and conservation districts to promote the wise use, protection, and enhancement of soil, water, and related natural resources. The award competition is cosponsored by ICI Americas Inc.

Pattyanne Corsentino of the Martin Luther King, Jr., Middle School in Denver, Colo., won first place in the teacher category. Corsentino instills enthusiasm and responsibility for natural resources in her inner-city students.

One notable project she and her students created on their school grounds was a nature area. The students tested soils and planted various species of native plants. They received assistance from the Soil Conservation Service and others.

The nature area has a pond with plants that are xeriscaped, which saves about 100 gallons of water a week. Rabbits, many species of birds, and insects frequent the pond.

Corsentino also coordinated field trips, schoolwide Earth Day celebrations, and construction of minilandfills by students. She has participated in environmental workshops for educators, in her city's homework hotline, and in various planning committees.

Rosemary McGuire won second place in the teacher category. She spearheaded a communitywide Earth Day "extravaganza" at the Mulberry Elementary School in Eureka, Kans. Earth Day activities included tree planting, an adopt-a-mile clean-up program, recycling activities, school programs, an essay contest, and a parade.

With her students, McGuire initiated a campaign to conserve water. She also demonstrated hands-on activities at teacher workshops and State association meetings.

In the district category, Papio-Missouri River Natural Resources District, Omaha, Nebr., won first place. Board and staff members coordinated a speakers bureau and a volunteer program.

They also conducted games at the State's groundwater festival,



participated in nature trail hikes and field days, organized adopt-a-school activities, sponsored school minigrants and teacher scholarships programs, assisted with college classes, and helped provide hands-on experiences for teachers.

Wake Soil and Water Conservation District in Raleigh, N.C., won second place in the district category. Their accomplishments included a water education workshop for teachers, hands-on school and farm activities for students, and scholarships to high school students.

They also helped school administrators identify natural resource needs, strengthened relations with community contacts, worked with youth leaders, and published teacher and cooperator newsletters.

## Videotape Answers Compliance Questions

A newly released, 15-minute videotape—featuring a conversation between Soil Conservation Service Chief William Richards and four farmers from across the country—answers many of the tough questions farmers with highly erodible land ask about conservation compliance.

In the video, "Straight Talk About Your Conservation Plan," Richards tackles issues like flexibility, changing plans, working with local SCS conservationists, and understanding the appeals system.

The farmers in the video represent four major row-cropping areas and a variety of commodities.

Randy Cruise of Pleasanton, Nebr.; Bruce Johnson of West Point, Va.; Mark Lanning of Pine Bluffs, Wyo.; and Mike Tate of Huntsville, Ala., ask questions that are regional and national in scope.

The theme of "Straight Talk" is to keep farm operations profitable, compliance plans flexible, and conservation methods effective.

"Straight Talk" was produced for the National Corn Growers Association in cooperation with SCS, the National Association of Conser-

vation Districts, the Conservation Technology Information Center (CTIC), the American Soybean Association, and the National Cotton Council.

Contact your local SCS or district office for more information on how to obtain a copy of the videotape.

*News Briefs* is compiled and edited by **Kim Berry-Brown**, contributing editor, *Soil & Water Conservation News*.

## Conservation Calendar

### November

- 1-4** Irrigation Association's 1992 International Irrigation Exposition and Technical Conference, New Orleans, La.; contact: Martha Lindauer 703/524-1200
- 8-12** Society of Environmental Toxicology and Chemistry 13th Annual Meeting, Cincinnati, Ohio; contact: Donald Versteeg, 513/627-6468
- 19-21** National Science Teachers Association Eastern Area Convention, New York, N.Y.; contact: NSTA, 202/328-0974
- 30-Dec. 3** International Association of Fairs and Expositions 102nd Annual Convention and Trade Show, Las Vegas, Nev.; contact: IAFE 417/862-5771

### December

- 10-12** National Science Teachers Association Southern Area Convention, Charlotte, N.C.; contact: NSTA, 202/328-0974
- 15-18** American Society of Agricultural Engineers' 1992 International Winter Meeting, Nashville, Tenn.; contact: ASAE, 616/429-0300

### January

- 14-16** National Association of Government Communicators, Alexandria, Va.; contact: Debbie Trocchi, 703/519-3902
- 30-Feb. 3** Southern Association of Agricultural Scientists 90th Annual Meeting, Tulsa, Okla.; contact: Oran Little, 606/257-4772

### February

- 7-11** National Association of Conservation Districts Annual Convention, Phoenix, Ariz.; contact: NACD, 202/547-6223
- 21-24** Agricultural Research to Protect Water Quality, Soil and Water Conservation Society, Minneapolis, Minn.; contact: SWCS, 515/289-2331
- 23-26** International Erosion Control Association 24th Conference, Indianapolis, Ind.; contact: IECA, 303/879-3010

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